



# **Armed Forces College of Medicine**

## **Anatomy department**

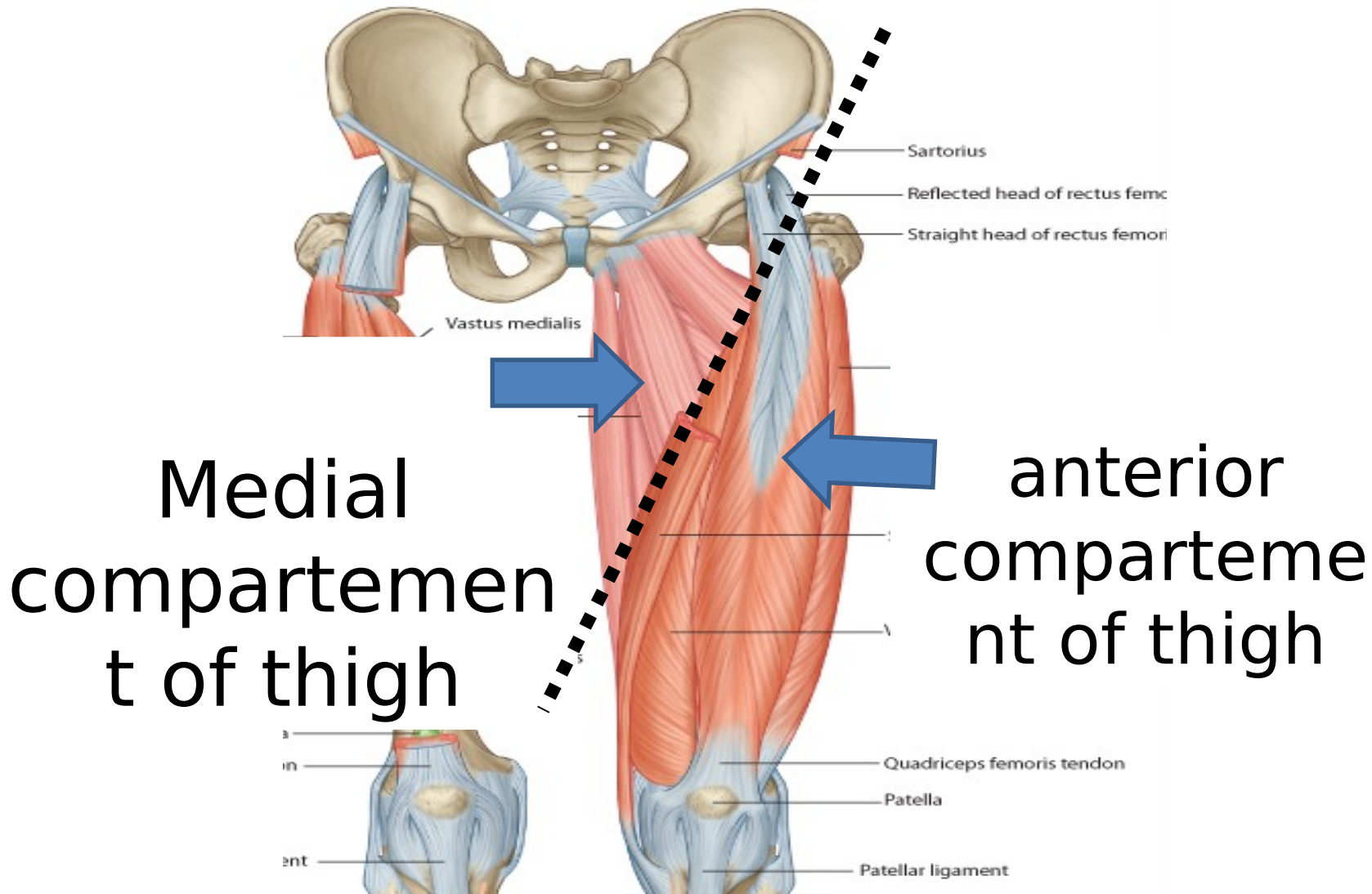


# Medial side of thigh and adductor canal

## INTENDED LEARNING OBJECTIVES (ILO)

1. Describe the attachments, action and nerve supply of muscles of the medial side of thigh (adductors & gracilis)
2. Describe root value, origin, course and branches of obturator nerve
3. Enumerate boundaries and contents of adductor canal

# MEDIAL COMPARTMENT OF THIGH



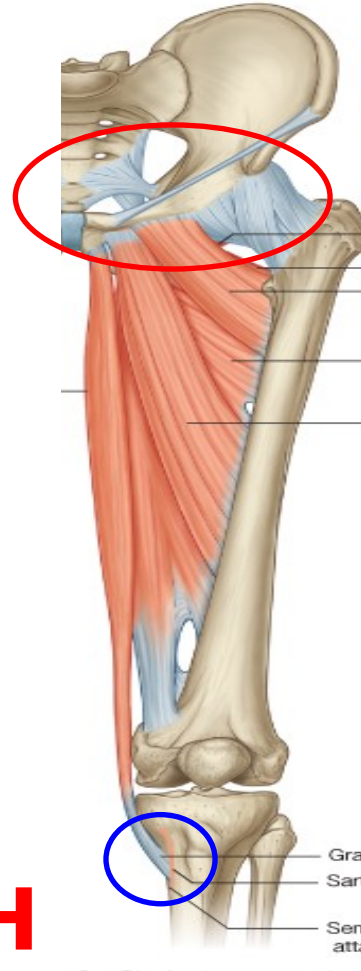
# MEDIAL COMPARTMENT OF THIGH

- ❑ All are **originated** from hip bone
- ❑ All are **inserted** into the back of femur except the gracilis into the tibia.

## :Action

All these muscles

**ADDCUT THE THIGH**



**Femur**  
Posterior View



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# MEDIAL COMPARTMENT OF THIGH

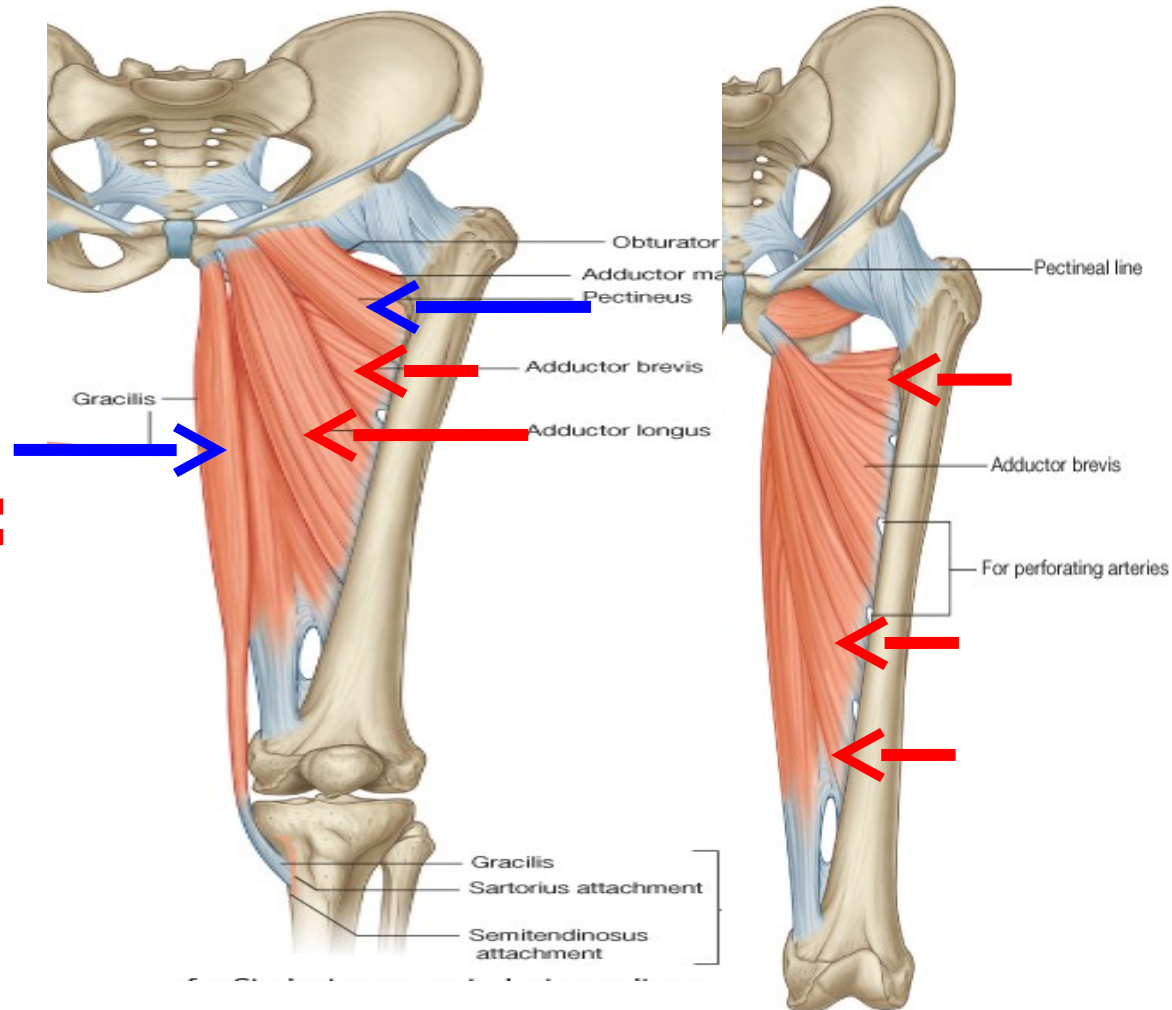
**Contains 5 muscles:**

➤ **pectinus**

➤ **Gracilis**

➤ **3 adductors:**

1. adductor longus,
2. adductor brevis
3. adductor magnus



# MEDIAL COMPARTMENT OF THIGH

## :Cutaneous nerve supply

- .Ilioinguinal nerve: skin of upper 1/3.1
- .Obturator nerve : skin of middle 1/3.2
- .Medial cutaneous nerve of thigh: skin of lower 1/3.3

## Muscles of the medial side of the thigh

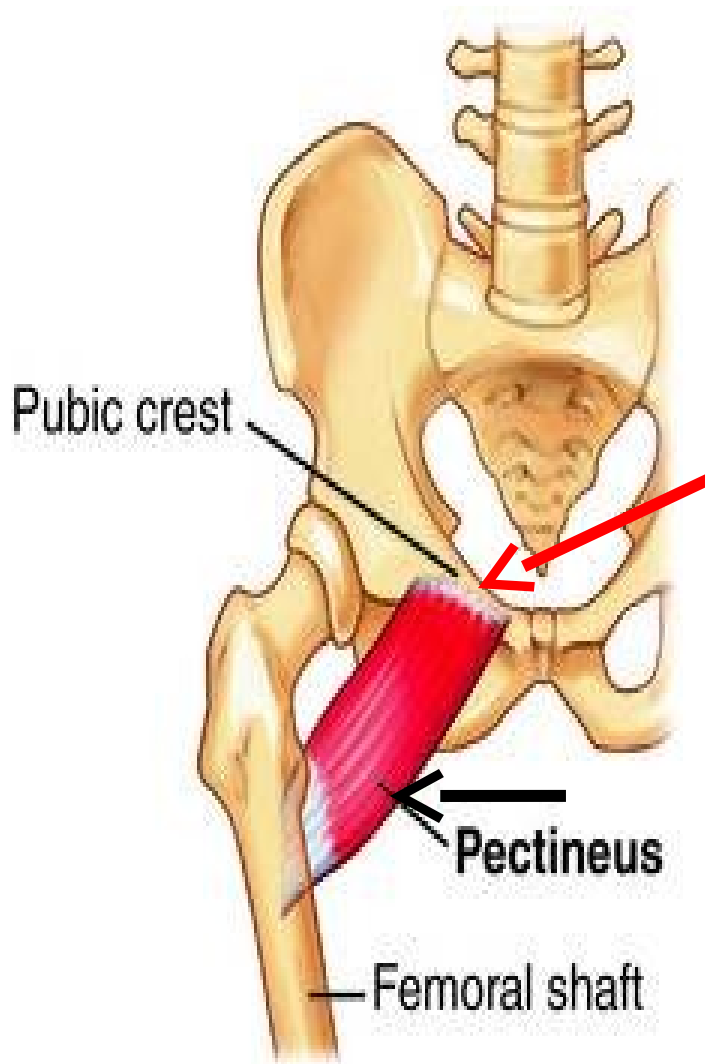
□ :(medial femoral muscles)

- .Include : pectineus, gracilis and 3 adductors
- : Are arranged into 3 layers
  - a) The anterior layer (pectineus , adductor longus & .gracilis)
  - .b) The middle layer (adductor brevis)
  - c) The posterior layer (adductor magnus). □
- All are inserted into the back of femur except the .gracilis into the tibia

# MEDIAL COMPARTMENT OF THIGH

## Pectineus

- **Origin:**  
superior pubic ramus & pectineal line
- **Insertion:**  
to upper part of linea aspera
- **Nerve supply:**  
femoral n



Femur  
Posterior View

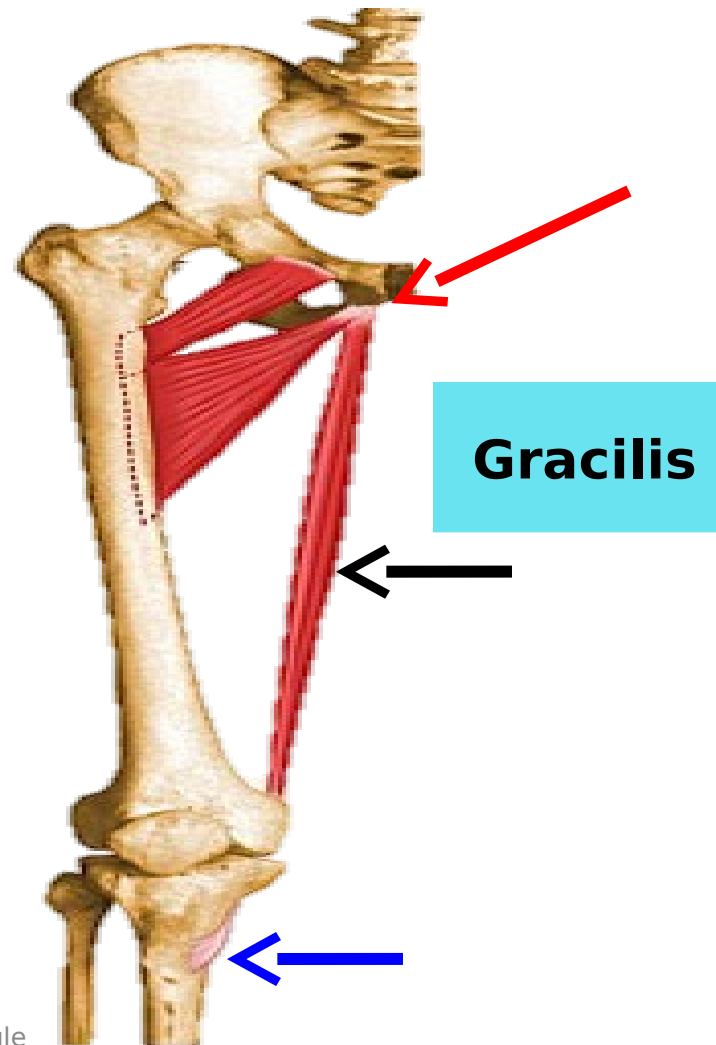




# MEDIAL COMPARTMENT OF THIGH

## Gracilis

- **Origin:**
- **lower  $\frac{1}{2}$  of body of pubis & pubic arch**
- **Insertion:**
- **upper part of medial surface of tibia**
- **Nerve supply:**
- **obturator nerve**



# MEDIAL COMPARTMENT OF THIGH

## Pectineus

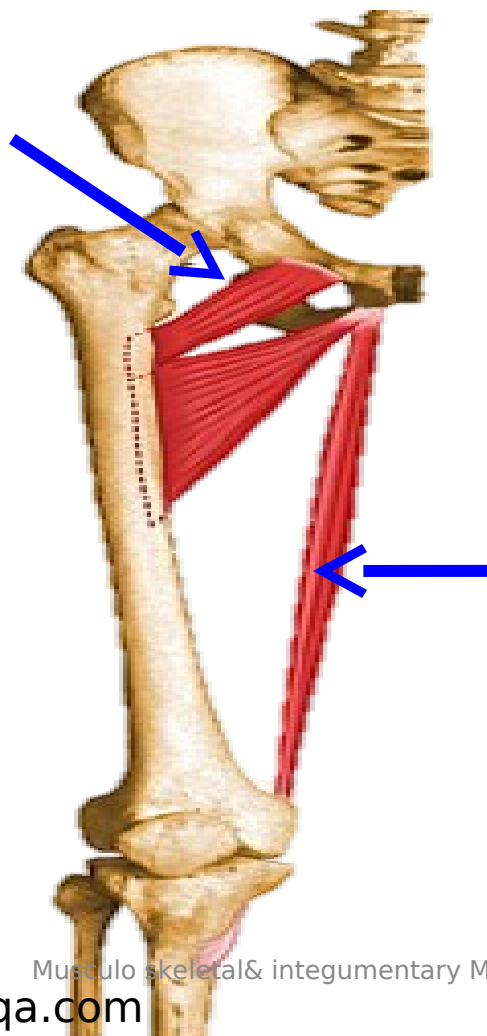
**Act on the  
hip joint**

**Action**  
**Adduction  
&  
flexion of  
thigh**

## Gracilis

**Act on the  
knee joint**

**Action**  
▪ **flexion of the  
knee**  
▪ **rotate semi-  
flexed knee  
medially**



# MEDIAL COMPARTMENT OF THIGH

## 3 ADDUCTORS MUSCLES

*arranged into 3  
layers:*

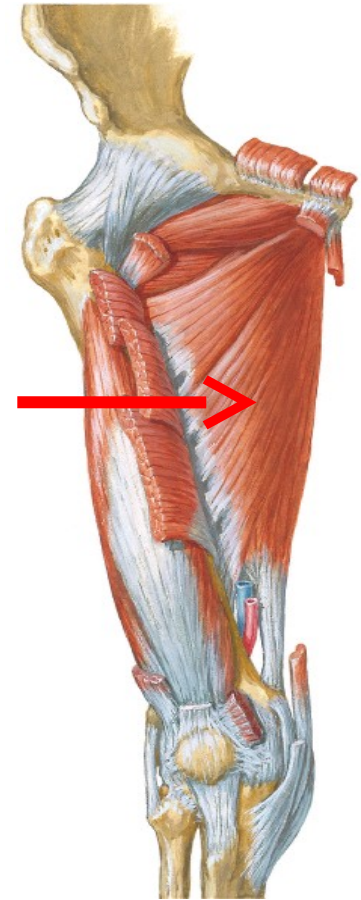
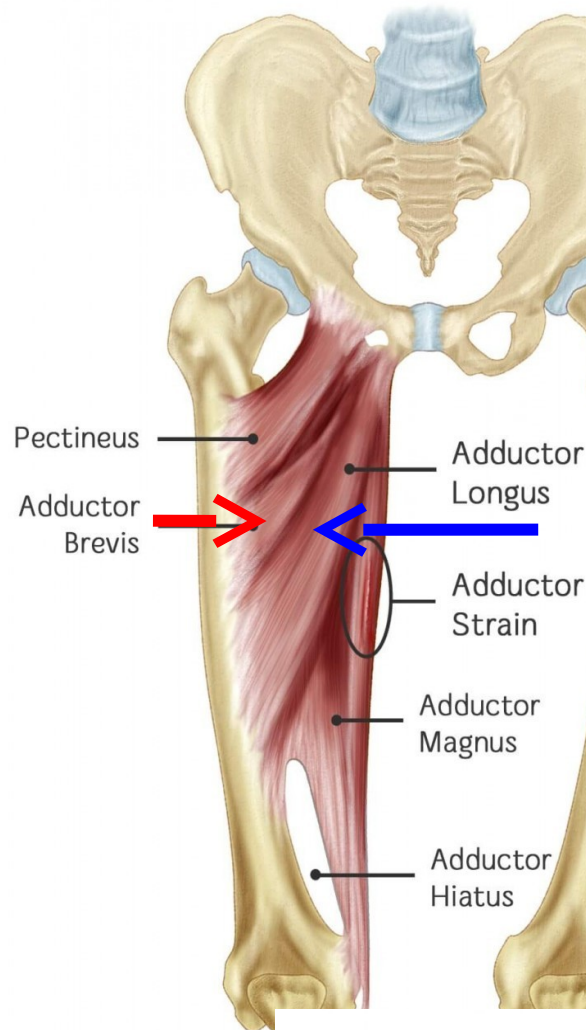
❖ **Superficial →**  
**Adductor**

**Longus**

❖ **Middle →**  
**Adductor**

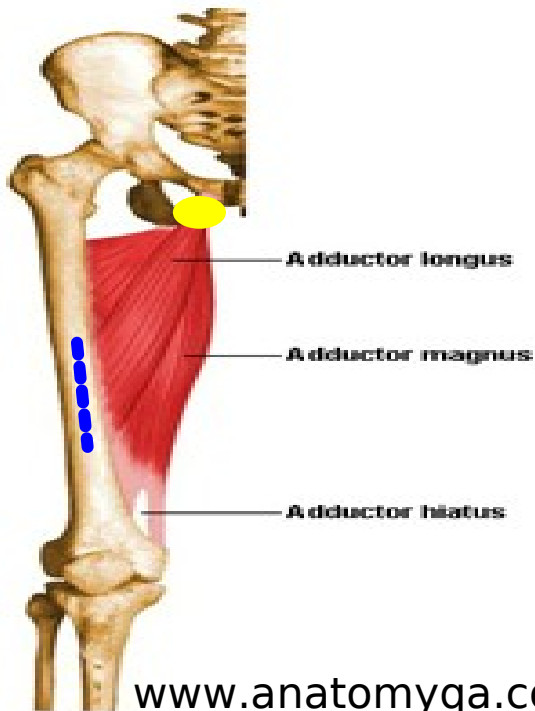
**Brevis**

❖ **deep →**



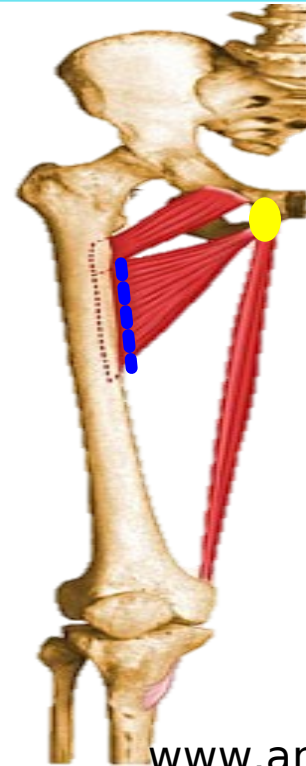
# MEDIAL COMPARTMENT OF THIGH

## Adductor longus



- **Origin:**
- front of body of pubis just below pubic tubercle

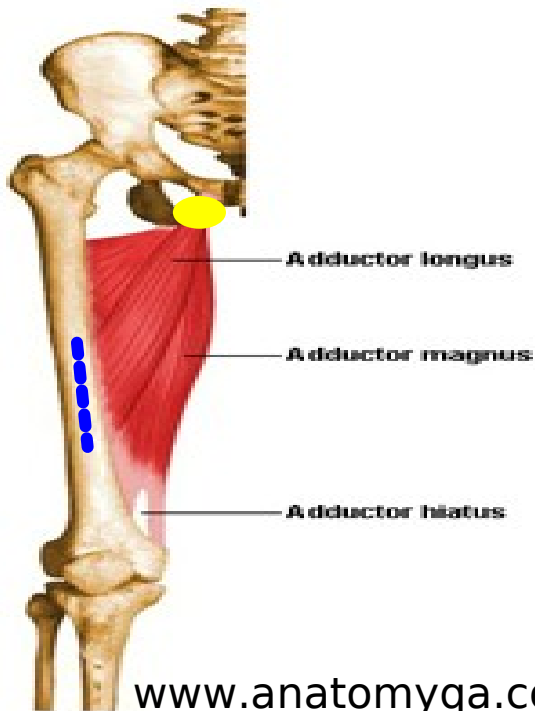
## Adductor brevis



- **Origin:**
- from body of pubis inferior to adductor longus & extends into inferior pubic ramus

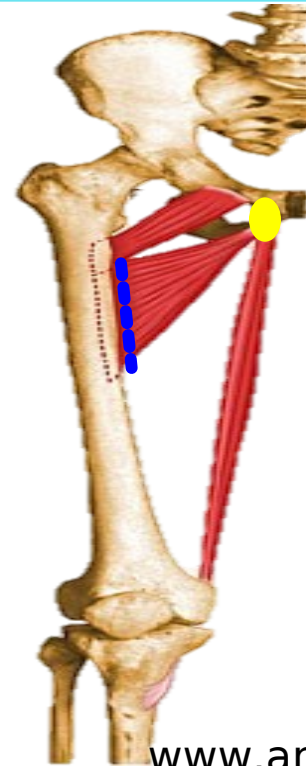
# MEDIAL COMPARTMENT OF THIGH

## Adductor longus



- **Origin:**
- front of body of pubis just below pubic tubercle

## Adductor brevis



- **Origin:**
- from body of pubis inferior to adductor longus & extends into inferior pubic ramus

# MEDIAL COMPARTMENT OF THIGH

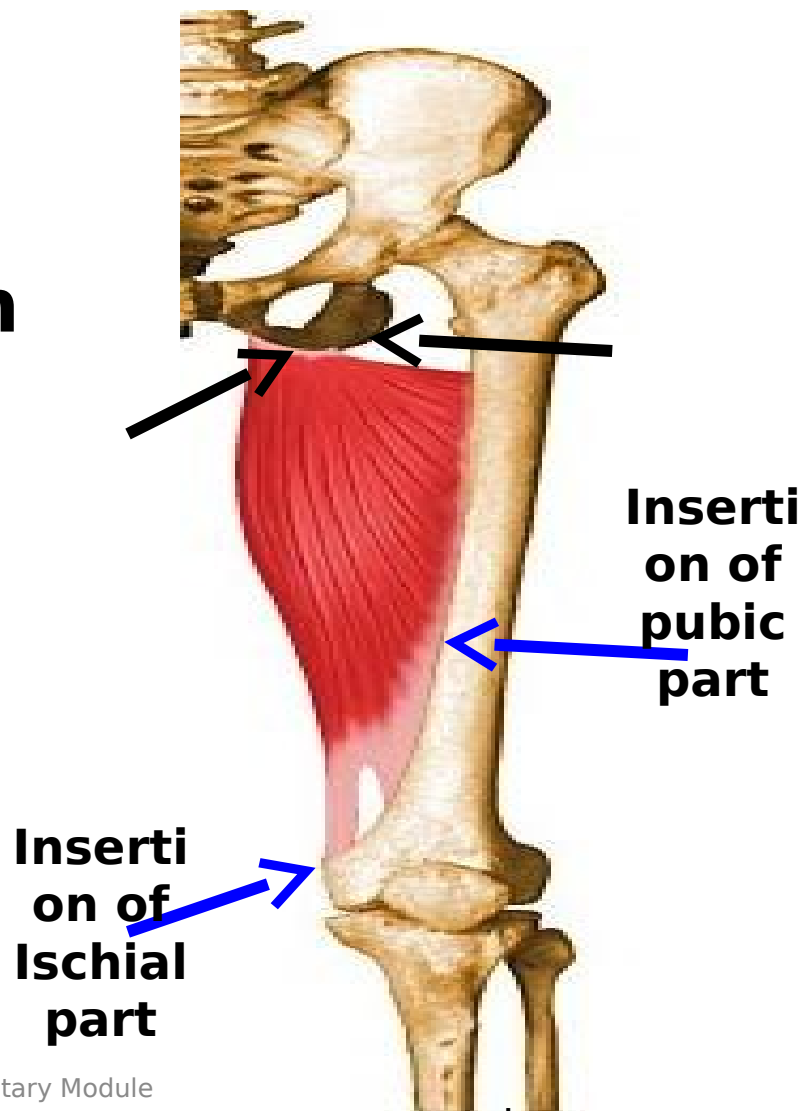
## Adductor magnus

- Origin:

1. **Pubic part:** pubic arch
2. **Ischial part:** ischial tuberosity

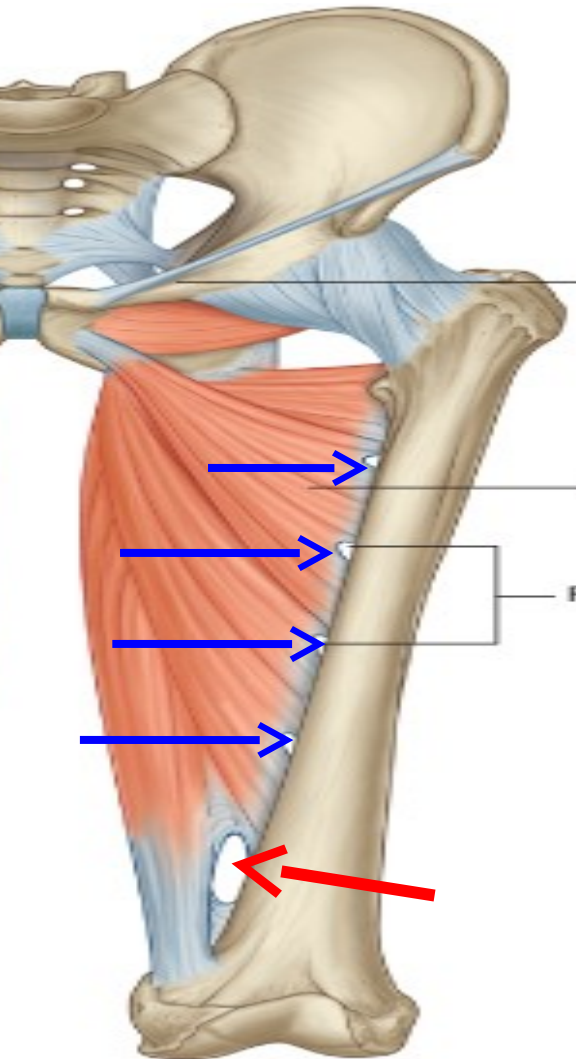
- Insertion:

1. **pubic part** → linea aspera & medial supracondylar line
2. **Ischial part** → adductor tubercle of femur



# MEDIAL COMPARTMENT OF THIGH

## Adductor magnus



□ Its pubic part presents **tendinous passages** for the .perforating arteries

□ Between the pubic part and the ischial part there is a triangular opening → for the **(adductor hiatus)** passage of the **femoral vessels**



# MEDIAL COMPARTMENT OF THIGH

Muscle	Origin	Insertion
<b><i>Pectineus</i></b>	a) pectin pubis (pectineal line) b) pectineal surface of the superior pubic ramus	upper <i>1/2</i> of a line <i>extending from lesser trochanter to linea aspera.</i>
<b><i>Adductor longus</i></b>	Front of the body of pubis just below pubic tubercle	middle part of the linea aspera
<b><i>Adductor brevis</i></b>	a) body of pubis below origin of adductor longus b) upper part of inferior pubic ramus	lower <i>2/3</i> of a line extending from lesser trochanter to linea aspera
<b><i>Pubic part of adductor magnus</i></b>	ischiopubic ramus ( <i>middle area</i> )	a) medial border of gluteal tuberosity. b) linea aspera. c) medial supracondylar line.
<b><i>Ischial part of adductor magnus</i></b>	lateral <b><i>part</i></b> of lower triangular area of ischial tuberosity	adductor tubercle of the femur
<b><i>Gracilis</i></b>	a) lower $\frac{1}{2}$ of body of pubis b) ischiopubic ramus .	upper part of medial surface of tibia between sartorius ( <i>anteriorly</i> ) & semitendinosus ( <i>posteriorly</i> ).





# Nerve supply the medial compartment

**Obturator**

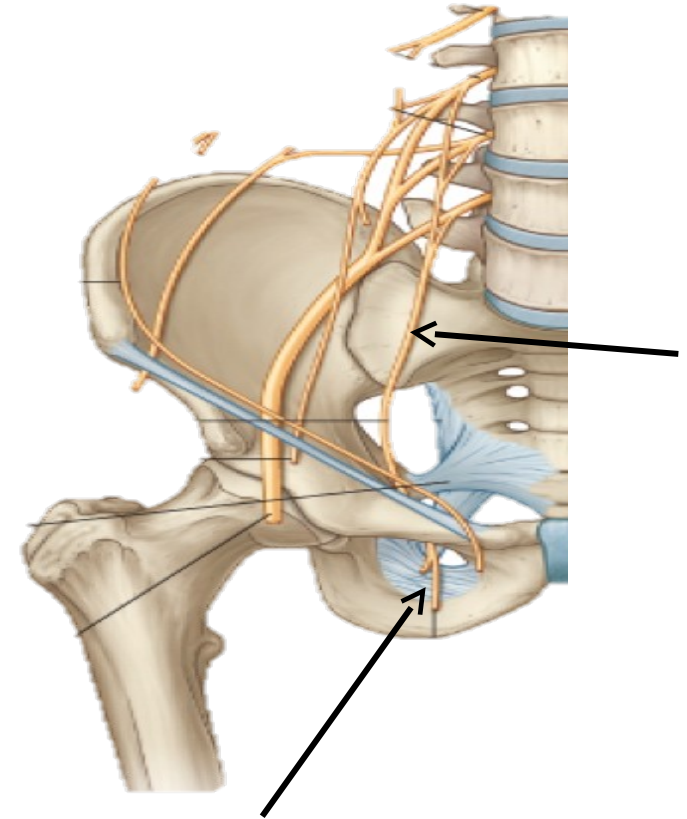
**Nerve**

**:Root value**

anterior divisions of the  
ventral rami of L2,3, 4

**:Course**

□ Enters the thigh  
through the obturator  
.foramen



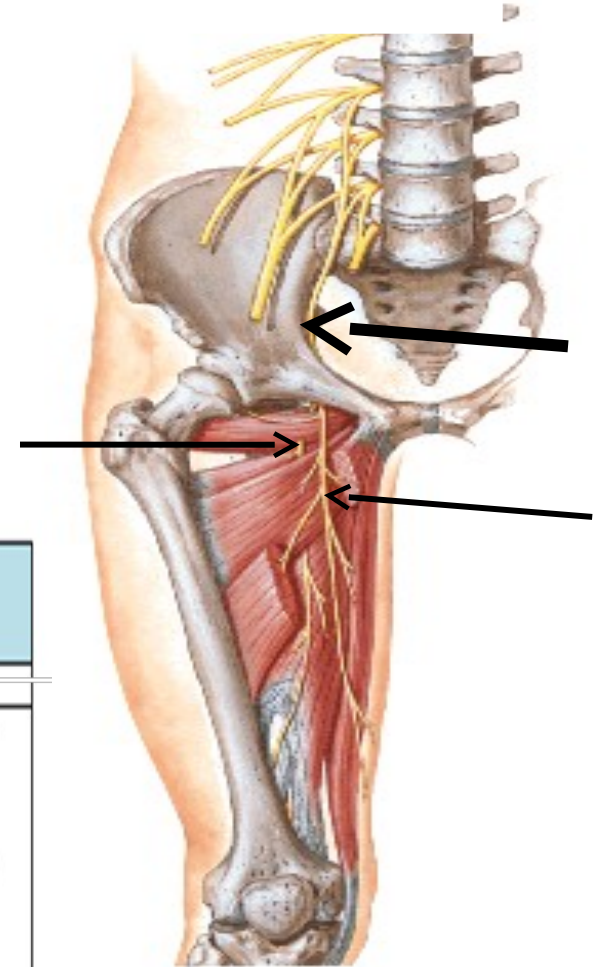
Netter atlas of Anatomy



# Nerve supply the medial compartment

## Obturator Nerve

□ it is divided into anterior and posterior divisions that pass anterior and posterior to the **adductor brevis**, respectively



	Anterior division	Posterior division
<i>Muscular</i>	-adductor <i>longus</i> , adductor <i>brevis</i> and gracilis - occasionally pectineus	Adductor <i>brevis</i> , pubic part of adductor <i>magnus</i> and obturator <i>externus</i>

# Obturator Nerve

## Obturator nerve:

- The main nerve supply of the medial compartment of the thigh.
- Root value: anterior divisions of the ventral rami of **L2,3, 4**
- Course:
  - ✓ Enters the thigh through the obturator canal .
  - ✓ At the end of the canal, it is divided into anterior and posterior divisions that pass anterior and posterior to the adductor brevis, respectively.
- Divisions:

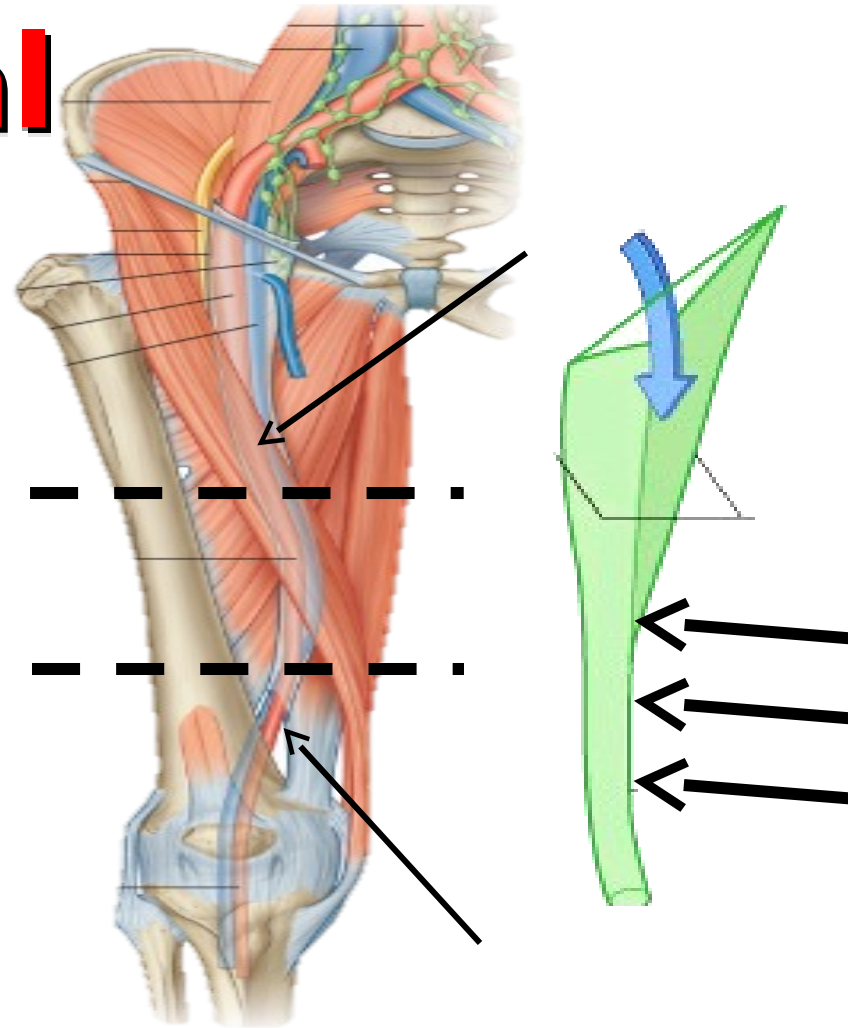
	Anterior division	Posterior division
<b>-Relation</b>	It passes between adductor longus ( <i>anteriorly</i> ) and adductor brevis ( <i>posteriorly</i> )	It passes between adductor brevis ( <i>anteriorly</i> ) and adductor magnus ( <i>posteriorly</i> )
<b>-Branches:</b>		
<b>Cutaneous</b>	to middle 1/3 of medial side of thigh (via subsartorial plexus)	has no cutaneous branches
<b>Articular</b>	to hip joint	to knee joint
<b>Vascular</b>	to femoral artery in adductor canal	to popliteal artery in popliteal fossa.
<b>Muscular</b>	-adductor <i>longus</i> , <i>adductor brevis</i> and <i>gracilis</i> - occasionally <i>pectineus</i>	<i>Adductor brevis</i> , <i>pubic part of adductor magnus</i> and <i>obturator externus</i>

# Adductor canal

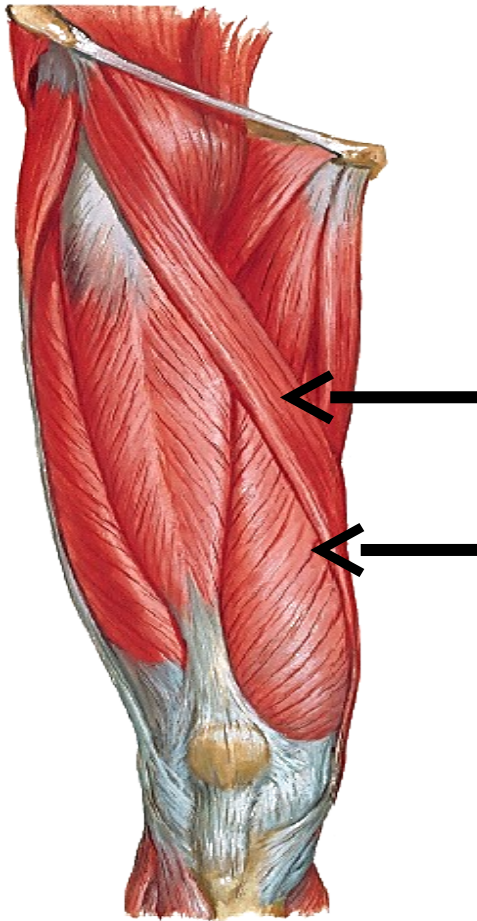


known as  
subsartorial canal  
& Hunter's canal

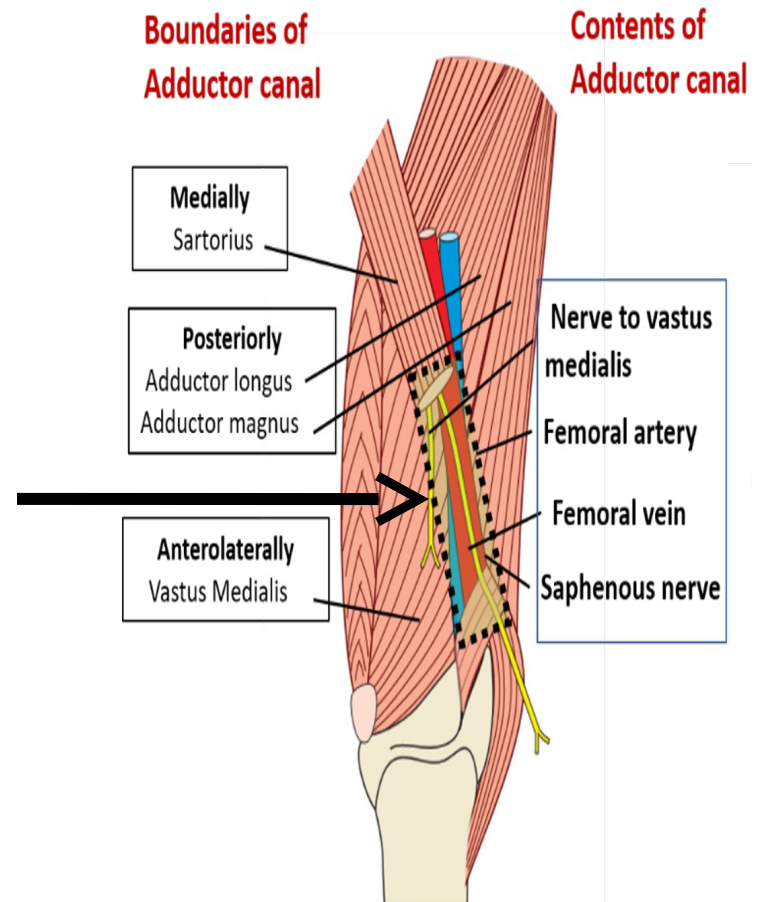
- It is an intermuscular tunnel in the middle  $1/3$  of medial side of thigh
- It extends from apex of femoral triangle to opening in adductor magnus



# Adductor canal



Anterior view



lateral view

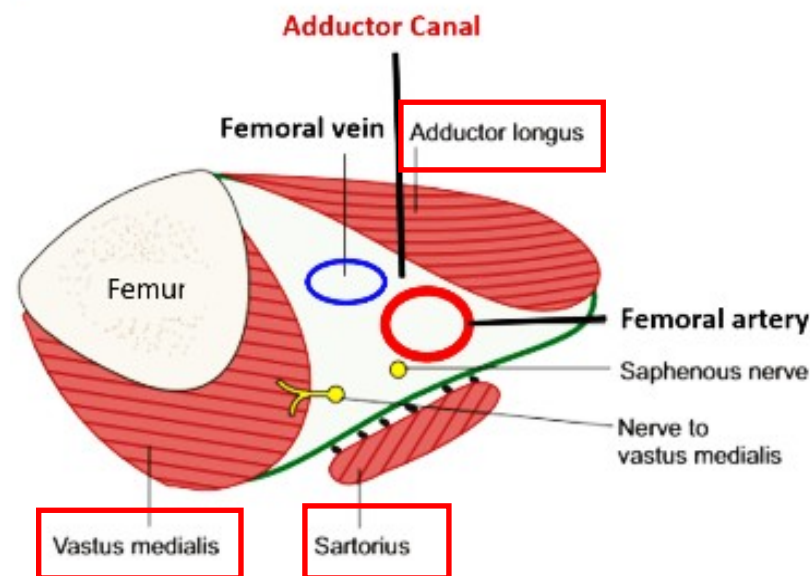
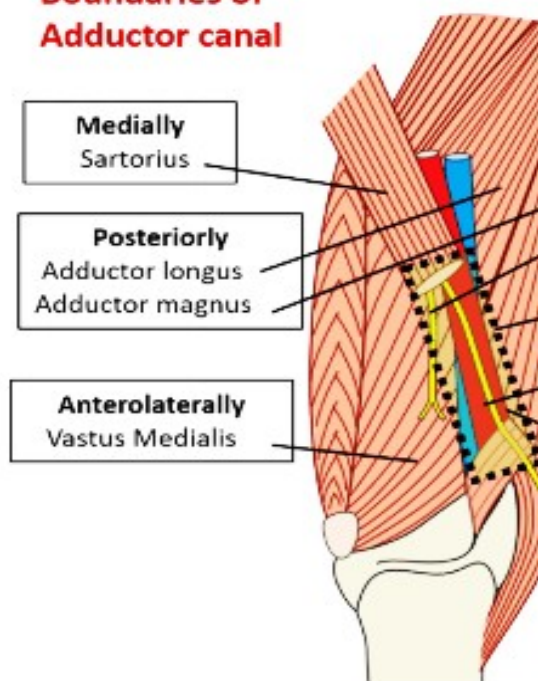


# Adductor canal



- **Boundaries:** Adductor canal is a narrow tunnel in the thigh and therefore has three walls.
  - **Anterolaterally** it is bounded by **vastus medialis**.
  - **Medially (roof)** it is formed by **sartorius muscle** beneath which lies subsartorial plexuses over a fascial sheath.
  - **Posteriorly** it is bounded by **adductor longus (in upper part)** and **adductor magnus (in lower part)** boundaries of adductor canal.

## Boundaries of Adductor canal

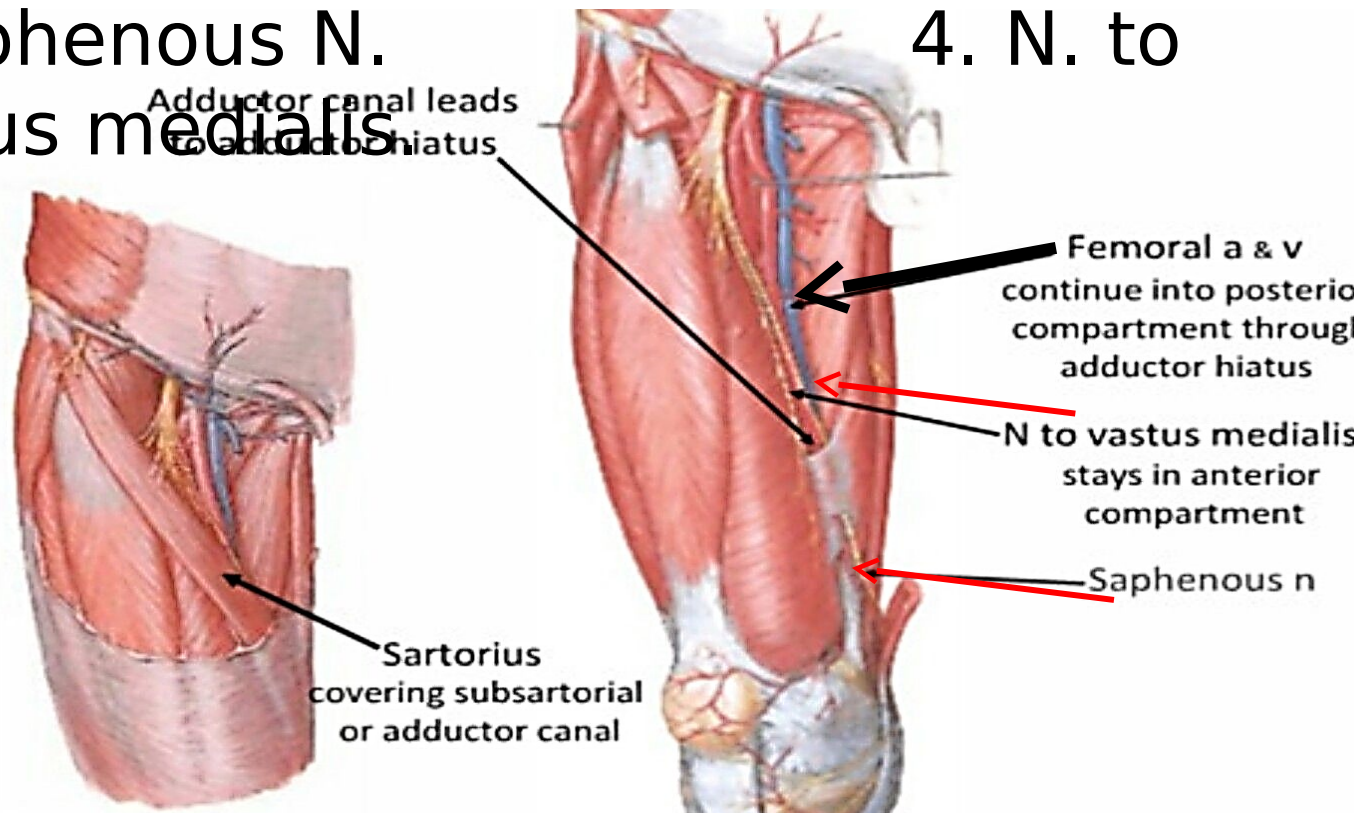


# Adductor



## Contents of adductor canal

1. Femoral A. vein.
2. Femoral
3. Saphenous N. vastus medialis
4. N. to



# Adductor



## Applied anatomy canal

### Adductor canal block

Local anaesthetic can be administered in the adductor canal to block the **saphenous nerve** in isolation, or together with the nerve to the vastus medialis to provide anaesthesia for procedures involving the distal thigh, knee and lower leg on the medial side.



# Adductor canal



## :Definition

Is an aponeurotic inter-muscular tunnel in the middle .1/3 of medial side of thigh

**Extension:** Extends from the apex of the femoral triangle to the opening of the adductor magnus (adductor hiatus) through which it communicates with .the popliteal fossa

**:Boundaries:** The canal is triangular in cross section

**.Anterolateral wall:** Is formed by vastus medialis

**Posterior wall (floor):** Is formed by adductor longus .above & adductor magnus below

**Anteromedial wall (roof):** Is formed by a strong fibrous (fascial) layer which extends from the vastus medialis to adductor longus and magnus

**. This fibrous roof** is covered by sartorius muscle

# Lecture Quiz



- a) Enumerate muscles present in medial compartment of thigh
- b) Describe boundaries and content of adductor canal

# SUGGESTED TEXTBOOKS



**Clinical Anatomy by Regions**, 9th edition,  
2011, Snell RS, Lippincott, Williams and  
Wilkins

**Atlas of Human Anatomy**, 6th edition,  
.2014, Netter F.H

**Gray's Anatomy for students**, 2nd edition,  
2011, Drake R. et al, Churchill & Livingstone